

Fig. 3A

Mouse alpha1-antitrypsin mRNA and polypeptide sequence

Met	Thr	Pro	Ser	Ile	Ser	Trp	Gly	Leu	Leu	Leu	Leu	Ala	Gly	Leu	Cys	Cys	Leu	Val	Pro
ATG	ACT	CCC	TCC	ATC	TCA	TGG	GGT	CTA	CTG	CTT	CTG	GCA	GGC	CTG	TGT	TGC	CTG	GTC	CCC
TAC	TGA	GGG	AGG	TAG	AGT	ACC	CCA	GAT	GAC	GAA	GAC	CGT	CCG	GAC	ACA	ACG	GAC	CAG	GGG
Ser	Phe	Leu	Ala	Glu	Asp	Val	Gln	Glu	Thr	Asp	Thr	Ser	Gln	Lys	Asp	Gln	Ser	Pro	Ala
AGC	TTT	CTG	GCT	GAG	GAT	GTT	CAG	GAG	ACA	GAC	ACC	TCC	CAG	AAG	GAT	CAG	TCC	CCA	GCC
TCG	AAA	GAC	CGA	CTC	CTA	CAA	GTC	CTC	TGT	CTG	TGG	AGG	GTC	TTC	CTA	GTC	AGG	GGT	CGG
Ser	His	Glu	Ile	Ala	Thr	Asn	Leu	Gly	Asp	Phe	Ala	Ile	Ser	Leu	Tyr	Arg	Glu	Leu	Val
TCC	CAT	GAG	ATC	GCT	ACA	AAC	CTG	GGA	GAC	TTT	GCA	ATC	AGC	CTA	TAC	CGG	GAG	CTG	GTC
AGG	GTA	CTC	TAG	CGA	TGT	TTG	GAC	CCT	CTG	AAA	CGT	TAG	TCG	GAT	ATG	GCC	CTC	GAC	CAG
His	Gln	Ser	Asn	Thr	Ser	Asn	Ile	Phe	Phe	Ser	Pro	Val	Ser	Ile	Ala	Thr	Ala	Phe	Ala
CAT	CAG	TCC	AAC	ACT	TCC	AAC	ATC	TTC	TTC	TCC	CCA	GTG	AGC	ATT	GCC	ACA	GCC	TTT	GCT
GTA	GTC	AGG	TTG	TGA	AGG	TTG	TAG	AAG	AAG	AGG	GGT	CAC	TCG	TAA	CGG	TGT	CGG	AAA	CGA
Met	Leu	Ser	Leu	Gly	Ser	Lys	Gly	Asp	Thr	His	Thr	Gln	Ile	Leu	Glu	Gly	Leu	Gln	Phe
ATG	CTC	TCC	CTA	GGG	AGC	AAG	GGT	GAC	ACT	CAC	ACG	CAG	ATC	CTA	GAG	GGC	CTG	CAG	TTC
TAC	GAG	AGG	GAT	CCC	TCG	TTC	CCA	CTG	TGA	GTG	TGC	GTC	TAG	GAT	CTC	CCG	GAC	GTC	AAG
Asn	Leu	Thr	Gln	Thr	Ser	Glu	Ala	Asp	Ile	His	Lys	Ser	Phe	Gln	His	Leu	Leu	Gln	Thr
AAC	CTC	ACA	CAA	ACA	TCG	GAG	GCT	GAC	ATC	CAC	AAG	TCC	TTC	CAA	CAC	CTC	CTC	CAA	ACC
TTG	GAG	TGT	GTT	TGT	AGC	CTC	CGA	CTG	TAG	GTG	TTC	AGG	AAG	GTT	GTG	GAG	GAG	GTT	TGG
Leu	Asn	Arg	Pro	Asp	Ser	Glu	Leu	Gln	Leu	Ser	Thr	Gly	Asn	Gly	Leu	Phe	Val	Asn	Asn
CTC	AAC	AGA	CCA	GAC	AGT	GAG	CTG	CAG	TTG	AGC	ACA	GGC	AAT	GGC	CTC	TTT	GTC	AAC	AAT
GAG	TTG	TCT	GGT	CTG	TCA	CTC	GAC	GTC	AAC	TCG	TGT	CCG	TTA	CCG	GAG	AAA	CAG	TTG	TTA
Asp	Leu	Lys	Leu	Val	Glu	Lys	Phe	Leu	Glu	Glu	Ala	Lys	Asn	His	Tyr	Gln	Ala	Glu	Val
GAC	CTG	AAG	CTG	GTG	GAG	AAG	TTT	CTG	GAA	GAG	GCC	AAG	AAC	CAT	TAT	CAG	GCA	GAA	GTC
CTG	GAC	TTC	GAC	CAC	CTC	TTC	AAA	GAC	CTT	CTC	CGG	TTC	TTG	GTA	ATA	GTC	CGT	CTT	CAG
Phe	Ser	Val	Asn	Phe	Ala	Glu	Ser	Glu	Glu	Ala	Lys	Lys	Val	Ile	Asn	Asp	Phe	Val	Glu
TTC	TCT	GTC	AAC	TTT	GCA	GAG	TCA	GAG	GAG	GCC	AAG	AAA	GTG	ATT	AAT	GAT	TTT	GTG	GAG
AAG	AGA	CAG	TTG	AAA	CGT	CTC	AGT	CTC	CTC	CGG	TTC	TTT	CAC	TAA	TTA	CTA	AAA	CAC	CTC
Lys	Gly	Thr	Gln	Gly	Lys	Ile	Val	Glu	Ala	Val	Lys	Glu	Leu	Asp	Gln	Asp	Thr	Val	Phe
AAG	GGA	ACC	CAA	GGA	AAG	ATA	GTT	GAG	GCA	GTG	AAA	GAA	CTG	GAC	CAA	GAC	ACA	GTT	TTC
TTC	CCT	TGG	GTT	CCT	TTC	TAT	CAA	CTC	CGT	CAC	TTT	CTT	GAC	CTG	GTT	CTG	TGT	CAA	AAG
Ala	Leu	Gly	Asn	Tyr	Ile	Leu	Phe	Lys	Gly	Lys	Trp	Lys	Lys	Pro	Phe	Asp	Pro	Glu	Asn
GCC	CTG	GGC	AAT	TAC	ATT	CTT	TTT	AAA	GGC	AAA	TGG	AAG	AAG	CCA	TTC	GAT	CCT	GAG	AAC
CGG	GAC	CCG	TTA	ATG	TAA	GAA	AAA	TTT	CCG	TTT	ACC	TTC	TTC	GGT	AAG	CTA	GGA	CTC	TTG
Thr	Glu	Glu	Ala	Glu	Phe	His	Val	Asp	Lys	Ser	Thr	Thr	Val	Lys	Val	Pro	Met	Met	Thr
ACT	GAA	GAA	GCT	GAG	TTC	CAC	GTG	GAC	AAG	TCC	ACC	ACG	GTG	AAG	GTG	CCC	ATG	ATG	ACC
TGA	CTT	CTT	CGA	CTC	AAG	GTG	CAC	CTG	TTC	AGG	TGG	TGC	CAC	TTC	CAC	GGG	TAC	TAC	TGG
Leu	Ser	Gly	Met	Leu	Asp	Val	His	His	Cys	Ser	Thr	Leu	Ser	Ser	Trp	Val	Leu	Leu	Met
CTC	TCG	GGC	ATG	CTT	GAT	GTG	CAC	CAT	TGC	AGC	ACA	CTC	TCC	AGC	TGG	GTG	CTG	CTG	ATG
GAG	AGC	CCG	TAC	GAA	CTA	CAC	GTG	GTA	ACG	TCG	TGT	GAG	AGG	TCG	ACC	CAC	GAC	GAC	TAC
Asp	Tyr	Ala	Gly	Asn	Ala	Ser	Ala	Val	Phe	Leu	Leu	Pro	Glu	Asp	Gly	Lys	Met	Gln	His
GAT	TAC	GCG	GGC	AAC	GCC	AGT	GCT	GTC	TTC	CTC	CTG	CCC	GAA	GAT	GGG	AAG	ATG	CAG	CAT
CTA	ATG	CGC	CCG	TTG	CGG	TCA	CGA	CAG	AAG	GAG	GAC	GGG	CTT	CTA	CCC	TTC	TAC	GTC	GTA
Leu	Glu	Gln	Thr	Leu	Asn	Lys	Glu	Leu	Ile	Ser	Lys	Ile	Leu	Leu	Asn	Arg	Arg	Arg	Arg
CTG	GAG	CAA	ACT	CTC	AAC	AAG	GAG	CTC	ATC	TCT	AAG	ATC	CTG	CTA	AAC	AGG	CGC	AGA	AGG
GAC	CTC	GTT	TGA	GAG	TTG	TTC	CTC	GAG	TAG	AGA	TTC	TAG	GAC	GAT	TTG	TCC	GCG	TCT	TCC
Leu	Val	Gln	Ile	His	Ile	Pro	Arg	Leu	Ser	Ile	Ser	Gly	Glu	Tyr	Asn	Leu	Lys	Thr	Leu

TTA GTC CAG ATC CAT ATC CCC AGA CTG TCC ATC TCT GGA GAA TAT AAC TTG AAG ACA CTC
AAT CAG GTC TAG GTA TAG GGG TCT GAC AGG TAG AGA CCT CTT ATA TTG AAC TTC TGT GAG

Met Ser Pro Leu Gly Ile Thr Arg Ile Phe Asn Asn Gly Ala Asp Leu Ser Gly Ile Thr
ATG AGT CCA CTG GGC ATC ACC CGG ATC TTC AAC AAT GGG GCT GAC CTC TCC GGA ATC ACA
TAC TCA GGT GAC CCG TAG TGG GCC TAG AAG TTG TTA CCC CGA CTG GAG AGG CCT TAG TGT

Glu Glu Asn Ala Pro Leu Lys Leu Ser Lys Ala Val His Lys Ala Val Leu Thr Ile Asp
GAG GAG AAT GCT CCC CTG AAG CTC AGC AAG GCT GTG CAT AAG GCT GTG CTG ACC ATC GAT
CTC CTC TTA CGA GGG GAC TTC GAG TCG TTC CGA CAC GTA TTC CGA CAC GAC TGG TAG CTA

Glu Thr Gly Thr Glu Ala Ala Ala Thr Val Phe Glu Ala Val Pro Met Ser Met Pro
GAG ACA GGA ACA GAA GCT GCA GCA GCT ACA GTC TTT GAA GCC GTT CCT ATG TCT ATG CCC
CTC TGT CCT TGT CTT CGA CGT CGT CGA TGT CAG AAA CTT CGG CAA GGA TAC AGA TAC GGG

Pro Ile Leu Arg Phe Asp His Pro Phe Leu Phe Ile Ile Phe Glu Glu His Thr Gln Ser
CCT ATC CTG CGC TTC GAC CAC CCT TTC CTT TTT ATA ATA TTT GAA GAA CAC ACT CAG AGC
GGA TAG GAC GCG AAG CTG GTG GGA AAG GAA AAA TAT TAT AAA CTT CTT GTG TGA GTC TCG

Pro Ile Phe Val Gly Lys Val Val Asp Pro Thr His Lys ***
CCC ATC TTT GTG GGA AAA GTG GTA GAT CCC ACA CAT AAA TGA
GGG TAG AAA CAC CCT TTT CAC CAT CTA GGG TGT GTA TTT ACT

Figure 3B

Mouse EMAP mRNA and polypeptide sequence

Met	Pro	Thr	Glu	Thr	Glu	Arg	Cys	Ile	Glu	Ser	Leu	Ile	Ala	Val	Phe	Gln	Lys	Tyr	Ser
ATG	CCT	ACA	GAG	ACT	GAG	AGA	TGC	ATT	GAG	TCC	CTG	ATT	GCT	GTT	TTC	CAA	AAG	TAC	AGC
TAC	GGA	TGT	CTC	TGA	CTC	TCT	ACG	TAA	CTC	AGG	GAC	TAA	CGA	CAA	AAG	GTT	TTC	ATG	TCG
Gly	Lys	Asp	Gly	Asn	Asn	Thr	Gln	Leu	Ser	Lys	Thr	Glu	Phe	Leu	Ser	Phe	Met	Asn	Thr
GGG	AAG	GAT	GGA	AAC	AAC	ACT	CAA	CTC	TCC	AAA	ACT	GAA	TTC	CTT	TCC	TTC	ATG	AAC	ACA
CCC	TTC	CTA	CCT	TTG	TTG	TGA	GTT	GAG	AGG	TTT	TGA	CTT	AAG	GAA	AGG	AAG	TAC	TTG	TGT
Glu	Leu	Ala	Ala	Phe	Thr	Lys	Asn	Gln	Lys	Asp	Pro	Gly	Val	Leu	Asp	Arg	Met	Met	Lys
GAG	CTG	GCT	GCC	TTC	ACA	AAG	AAC	CAG	AAG	GAT	CCT	GGT	GTC	CTT	GAC	CGC	ATG	ATG	AAG
CTC	GAC	CGA	CGG	AAG	TGT	TTC	TTG	GTC	TTC	CTA	GGA	CCA	CAG	GAA	CTG	GCG	TAC	TAC	TTC
Lys	Leu	Asp	Leu	Asn	Cys	Asp	Gly	Gln	Leu	Asp	Phe	Gln	Glu	Phe	Leu	Asn	Leu	Ile	Gly
AAG	CTG	GAC	CTC	AAC	TGT	GAC	GGG	CAG	CTA	GAT	TTC	CAA	GAG	TTT	CTC	AAC	CTC	ATT	GGT
TTC	GAC	CTG	GAG	TTG	ACA	CTG	CCC	GTC	GAT	CTA	AAG	GTT	CTC	AAA	GAG	TTG	GAG	TAA	CCA
Gly	Leu	Ala	Ile	Ala	Cys	His	Asp	Ser	Phe	Ile	Gln	Thr	Ser	Gln	Lys	Arg	Ile	***	
GGC	TTA	GCT	ATA	GCG	TGC	CAT	GAT	TCT	TTC	ATC	CAA	ACT	TCC	CAG	AAG	CGA	ATC	TAA	
CCG	AAT	CGA	TAT	CGC	ACG	GTA	CTA	AGA	AAG	TAG	GTT	TGA	AGG	GTC	TTC	GCT	TAG	ATT	

Figure 3C

Alignment of homologous AAT mRNA and protein sequences from other species

		1		60
hamster AAT	(1)	-----	ATCAGCTCTGGGACAGGCAAGCTA	AAATGA
human AAT	(1)	-----	ACATGTAATC	GACAATGC
mouse AAT	(1)	-----		ATGA
rabbit AAT	(1)	ATATCATCTCCCATCTTTGTCTCTGCCACCAGCCCTGGGCACTGAGTCTTG	GACAATGC	
rat AAT	(1)	-----		
sheep AAT	(1)	-----		CGATAATGG
Consensus	(1)			GA AATG
		61		120
hamster AAT	(32)	AGCCCTCCATCTCATGGGGGATCCTGCTGCTGGCAGGCCTGTGCTGCCTGGTCCCGAGCT		
human AAT	(19)	CGTCTTCTGTCTCGTGGGGCATCCTCCTG---GCAGGCCTGTGCTGCCTGGTCCCGTGTCT		
mouse AAT	(5)	CTCCCTCCATCTCATGGGGTCTACTGCTTCTGGCAGGCCTGTGTGCTGCTGGTCCCGAGCT		
rabbit AAT	(61)	CACCTCTGTCTCTCGGGCGCTCCTGCTGCTGGCAGGCCTGGCTGCCTGCTGCCCCGCT		
rat AAT	(1)	---GCTCCATCTCACGGGGGCTCCTGCTTCTGGCAGCCCTGTGTGCTGCTGGCAGCT		
sheep AAT	(10)	CATCTCCATCACACGGGGCTTCTGCTGCTGGCAGCCCTGTGCTGCCTGGCAGCCACCT		
Consensus	(61)	C CCCTCCATCTCATGGGGGCTCCTGCTGCTGGCAGGCCTGTGCTGCCTGGTCCCCAGCT		
		121		180
hamster AAT	(92)	TCCTGGCTGAGGAT-----GCCAGGAGACAGAT--GCCTCAAGCAGG		
human AAT	(76)	CCCTGGCTGAGGATCCCCAGGGAGATGCTGCCAGAGACAGAT--ACATCCCAACATG		
mouse AAT	(65)	TTCTGGCTGAGGAT-----GTTCAGGAGACAGAC--ACCTCCAGCAGG		
rabbit AAT	(121)	TCCTGGCCGACGAG-----GCCAGGAGACAGCC--GTTTCAGCCATG		
rat AAT	(58)	TCCTGGCTGAGGAT-----GCCAGGAAACCGAT--ACCTCCAGCAGG		
sheep AAT	(70)	CCCTGGCTGGGTTCTCCAAGGACACGCTGTCCAGAGACAGATGATACAGGCCACAGG		
Consensus	(121)	TCCTGGCTGAGGATGCCAGGAGACAGATACCTCCAGCAGG		
		181		240
hamster AAT	(134)	ATCAGGAGCAACCAAGCCTGCTCTAAGATCGCTCCAAATTTGGCAGACTTTTCCTTCAACG		
human AAT	(133)	ATCAGGATCACCCAACCTTCAACAAGATCACCCCAACCTGGGTGAGTTCCGCTTCAGCC		
mouse AAT	(107)	ATCAG--TG---CCAGCCTCCATGAGATCGCTACAAACCTGGGAGACTTTGCAATCAGCC		
rabbit AAT	(163)	AGCAGGACCGCCAGCCTGCCACAGGATGCCCCGAGCCTGGTTGAGTTCCGCTTCAGCC		
rat AAT	(100)	ACCAG-AGT-CCAA-CCTACCGTAAGATTCTTCAAACCTGGCAGACTTTGCCTTCAGCC		
sheep AAT	(130)	A--AG-----CAGCCTGCCACAAGATTGCCCCCAACCTGGCCAACCTTTCGCTTCAGCA		
Consensus	(181)	ATCAGGA C CCCAGCCTGCCATAAGATCGCTCCAAACCTGGCAGACTTTGCCTTCAGCC		
		241		300
hamster AAT	(194)	TATACCGGGAGCTGGTCCATCAGTCCAATACGACCAACATCTTCTTCTCTCTGTGAGCA		
human AAT	(193)	TATACCGCCAGCTGGCACACAGTCCAACAGCAGCAATATCTTCTTCTCCCCAGTGAGCA		
mouse AAT	(164)	TATACCGGGAGCTGGTCCATCAGTCCAACATTTCCAACATCTTCTTCTCCCCAGTGAGCA		
rabbit AAT	(223)	TGTACCGGGAGCTGGCCCCGAGTCCAACACCACCAATATCTTCTTCTCCCGGTGAGCA		
rat AAT	(157)	TATACCGGGAGCTGGTCCATCAATCCAATACATCCAACATCTTCTTCTCCGCTATGAGCA		
sheep AAT	(181)	TATACCACAAGTTGGCCCATCAGTCCAATACCAGCAACATCTTCTTCTCCCGATGAGCA		
Consensus	(241)	TATACCGGGAGCTGGTCCATCAGTCCAATACCACCAACATCTTCTTCTCCCCAGTGAGCA		
		301		360
hamster AAT	(254)	TTGCCACAGCCTTTGCTATGCTCTCTCTGGGCAGCAAGGGTGTCACTCAGACCAGATTC		
human AAT	(253)	TCCGTACAGCCTTTGCAATGCTCTCCCTGGGGACCAAGGCTGACACTCAGCATGAAATCC		
mouse AAT	(224)	TTGCCACAGCCTTTGCTATGCTCTCCCTAGGGAGCAAGGGTGACACTCAGACGAGATCC		
rabbit AAT	(283)	TCCGCTTGGCCTTTGCCATGCTCTCCCTGGGGGCAAGGGGGACAGCCACACCAGGTCC		
rat AAT	(217)	TCACCACAGCCTTCGCCATGCTCTCCCTGGGGAGCAAGGGTGACACTCGCAACAGATTC		
sheep AAT	(241)	TCCGTTTCAGCCTTTGCGATGCTTTCCCTGGGAGCCAAAGGGCAACACTCAGACTGATCC		
Consensus	(301)	TCGCCACAGCCTTTGC ATGCTCTCCCTGGGGACCAAGGGTGACACTCACAC CAGATCC		
		361		420
hamster AAT	(314)	TAGAGGGCCTGGGCTTCAACCTCACAGAAATAGCCGAGGCTGAGGTCCACAAAGGCTTCC		
human AAT	(313)	TGGAGGGCCTGAATTTCAACCTCACGGAGATTCCGGAGGCTCAGATCCATGAAGGCTTCC		
mouse AAT	(284)	TAGAGGGCCTGCAGTTCAACCTCACACAAACATCGGAGGCTGACATCCACAAATCCTTCC		
rabbit AAT	(343)	TGGAGGGCCTGAAGTTCAACCTCACAGAGACGCGGAGGCCCAGATCCAGACCGGCTTCC		
rat AAT	(277)	TAGAGGGCCTGGAGTTCAACCTCACACAGATACCTGAGGCTGACATCCACAAAGCCTTCC		
sheep AAT	(301)	TGGAGGGCCTGGCTTTCAACCTCACTGAGCTAGCAGAGGCTGAGATCCACAAAGGCTTCC		
Consensus	(361)	TGGAGGGCCTGGAGTTCAACCTCACAGAGATAGC GAGGCTGAGATCCACAAAGGCTTCC		

		421		480
hamster AAT	(374)	ATAACCTCCTCGAGACCTTCAACAGGCCAGACAATGAGCTTCAGCTGACGACAGGCAATG		
human AAT	(373)	AGGAACCTCCTCCGTACCCTAAACAGCCAGACAGCCAGCTCCAGCTGACCAACCGGCAATG		
mouse AAT	(344)	AACACCTCCTCCAAACCCCTCAACAGACCAGACAGTGAAGCTGCAGTTGAGGACAGGCAATG		
rabbit AAT	(403)	GGCACCCTCCTGCAACCGGTCAACAGGGCCGACAGCGAGCTGCAGCTGGCCGCGGGCAACG		
rat AAT	(337)	ATCACCTCCTCCAAACTCTCAACAGGCCAGACAGTGAAGCTGCAGCTGAACACAGGCAATG		
sheep AAT	(361)	AGCATCTTCTCCACACCCTCAACAGCCAAACACCAGCTGCAACTGACCAACCGGCAATG		
Consensus	(421)	AGCACCTCCTCCA ACCCTCAACAGGCCAGACAGTGAAGCTGCAGCTGACCACCGGCAATG		
		481		540
hamster AAT	(434)	GCCTGTTTCATCCACAACAATCTAAAGCTGGTGGATAAGTTCTTGGAAAGAGGTCAAGAAAGC		
human AAT	(433)	GCCTGTTTCCTCAGCGAGGGCTGAAGCTAGTGGATAAGTTTCTGGAGCATGTTAAAAAGT		
mouse AAT	(404)	GCCTCTTTTGTCAACAATGACCTGAAGCTGGTGGAGAAGTTTCTGGAAAGAGGCCAAGAAGC		
rabbit AAT	(463)	CCCTGGTTCGTACCGAGAACTGAAGCTGCAGCACAAGTTTCTAGAAGACGCCAAGAACC		
rat AAT	(397)	GCCTCTTTTGTCAACAAGAATCTGAAGCTGGTGGAGAAGTTTCTGGAAAGAGGTCAAGAACA		
sheep AAT	(421)	CTCTGTTTCATCAATGAGAGTGCAAAGCTAGTTGATACGTTTTTGGAGCATGTCAAGAATC		
Consensus	(481)	GCCTGTTTCGTCAACGAGAATCTGAAGCTGGTGGATAAGTTTCTGGAAAGAGGTCAAGAACC		
		541		600
hamster AAT	(494)	ATTACCACTCGGAAGCCTTCTCTGTCAACTTCACAGACTCAGAAAGAGGCCAAGAAAGTGA		
human AAT	(493)	TGTACCACTCAGAAGCCTTCACTGTCAACTTCGGGCATCACCAAGAGGCCAAGAAACAGA		
mouse AAT	(464)	ATTATCAGGCAGAAGTCTTCTCTGTCAACTTTCAGAGTCAGAGGAGGCCAAGAAAGTGA		
rabbit AAT	(523)	TGTACCACTCGGAAGCCTTCTCTGTCAACTTCAGGACCCGAGCAGGCCAAGCAAGAAAG		
rat AAT	(457)	ATTACCACTCAGAAGCCTTCTCTGTCAACTTTCAGGACTCAGAAAGAGGCTAAGAAAGTAA		
sheep AAT	(481)	TGCATCACTCGAAGCCTTCTCATCAACTTCAGGGATGCTGAGGAGGCCAAGAAAGAGA		
Consensus	(541)	TTTACCACTCAGAAGCCTTCTCTGTCAACTTCGGGACTCAGAGGAGGCCAAGAAAGTGA		
		601		660
hamster AAT	(554)	TCAACGGTTTCTGTGAGAAGGGAAGCCCAAGGAAAGATAGTTGATTTAGTGAAGGACCTTG		
human AAT	(553)	TCAACGATTACGTGGAGAAGGGTACTCAAGGGAATAATGTGGATTGGTCAAGGAGCTTG		
mouse AAT	(524)	TTAATGATTTCTGTGAGAAGGGAACCCCAAGGAAAGATAGTTGAGGCAGTGAAGAACTGG		
rabbit AAT	(583)	TCAACAGCCACGTGGAGAAGGGAGCCGAGGGAAGATCGTGGACTTGGTGCAAGAGCTGG		
rat AAT	(517)	TTAATGATTATCTAGAGAAGGGAACCCCAAGGAAAGATAGTTGATTTGATGAACACGCTGG		
sheep AAT	(541)	TCAATGATTATGTAGAGAAGGGAAGCCATGGAAAAATCTGTGATTGGTAAAGGATCTTG		
Consensus	(601)	TCAATGATTATGTGGAGAAGGGAACCCCAAGGAAAGATAGTTGATTTGGTGAAGGAGCTTG		
		661		720
hamster AAT	(614)	ACAAAGACACAGTTCTTGCCCTGGTGAATTACATTTTCTTTAAAGGCAAGTGGAGAAGC		
human AAT	(613)	ACAGAGACACAGTTTTTGGCTGGTGAATTACATCTTCTTTAAAGGCAAAATGGGAGAGAC		
mouse AAT	(584)	ACCAAGACACAGTTTTTGGCCCTGGGCAATTACATTTCTTTTAAAGGCAAAATGGAGAAGC		
rabbit AAT	(643)	ACGCCCGCACACTGCTTGCCCTGGTGAACCTACGTTTCTTCAAGGGAAGTGGGAGAAGC		
rat AAT	(577)	ACGAAGACACGTTTTTTGGCCCTGGTGAATTACATTTTCTTTAAAGGCAAGTGGAGAAGC		
sheep AAT	(601)	ACCAAGACACAGTTTTTGGCTGGCTCAATTACATATCTTTTAAAGGCAAAATGGGAGAAGC		
Consensus	(661)	AC AAGACACAGTTTTTGGCCCTGGTGAATTACATTTTCTTTAAAGGCAAGTGGGAGAAGC		
		721		780
hamster AAT	(674)	CCTTCGATGCAGACAACACTGAGGAAGCTGACTTCCACGTGGACAAGAACCACCGGTGA		
human AAT	(673)	CTTTTGAAGTCAAGGACACCGAGGACGAGGACTTCCACGTGGACAGGTGACCACCGTGA		
mouse AAT	(644)	CATTTCGATCCTGAGAACACTGAAGAAGCTGAGTTCCACGTGGACAAGTCCACCACCGTGA		
rabbit AAT	(703)	CCTTCGAGCCCGAGAACACCAAGGAAGAGGACTTCCACGTGGACCCACGACCACCGTGC		
rat AAT	(637)	CATTCAATCCTGAGCACACTAGGGATGCTGACTTTCACGTAGACAAGTCCACCACAGTGA		
sheep AAT	(661)	CCTTCGAGGTTCGAGCACACACGGAAGGGACTTCCACGTGAATGAGCAAAACCACCTGA		
Consensus	(721)	CCTTCGATGCCGAGAACACTGAGGAAGCTGACTTCCACGTGGACAAG CCACCACCGTGA		
		781		840
hamster AAT	(734)	AGGTGCCCATGATGACCGGCTGGGCATGTTTGAGCTGCACTATGTTAGCACTCTGTCCA		
human AAT	(733)	AGGTCCCTATGATGAAGCGTTTACGCATGTTTAAACATCCAGCATGTAAGAAGCTGCCA		
mouse AAT	(704)	AGGTGCCCATGATGACCCCTCTCGGGCATGCTTGATGTTGCACCATTCAGCAGACTCTCCA		
rabbit AAT	(763)	GGGTGCCCATGATGTCGCGCTGGGCATGTATGTGATGTTCCACTGTAGCAGGCTGCCA		
rat AAT	(697)	AGGTGCCCATGATGAACCGCTGGGCATGTTTGACATGCACTATTGCAGCAGACTGTCCA		
sheep AAT	(721)	AGGTGCCCATGATGAACCGCTGGGCATGTTTGACCTCCACTACGTGACAAGCTGCCA		
Consensus	(781)	AGGTGCCCATGATGAACCGCTGGGCATGTTTGACATGCACTATTGTAGCACGCTGTCCA		

		841	900
hamster AAT	(794)	CCTGGGTGCTGCTGATGGATTACCTGGGCAACGGCACTGCCATCTTCATCCTAGCTGATG	
human AAT	(793)	CCTGGGTACTGCTAATGAATACCTGGGCAATGCCACCGGCATCTTCTTCTTACCTGATG	
mouse AAT	(764)	CCTGGGTGCTGCTGATGGATTACGCGGGCAACGGCACTGCTGTCTTCTCTCTGCCCGAAG	
rabbit AAT	(823)	GCACGGTCGTGCTGATGGACTACAAGGGCAACGGCAACGGCCCTCTTCTCTCTGCCCGACG	
rat AAT	(757)	CCTGGGTGCTGATGATGGATTACCTGGGCAACGGCACTGCCATCTTCTCTCTGCCCGATG	
sheep AAT	(781)	CCTGGGTGCTGCTGCTGGACTAGCTGGGCAACGTCAGCGCCTGCTTCATCCTGCCCGACC	
Consensus	(841)	CCTGGGTGCTGCTGATGGATTACCTGGGCAACGGCACTGCCATCTTCTCTCTGCCCGATG	
		901	960
hamster AAT	(854)	ATGGCAAGATGCAGCATCTGGAGCAAACCTCTCAACAAGGAATCATTTGGCAAGTTCTCTGA	
human AAT	(853)	AGGGGAACATACAGCACCTGGAAAATGAACCTACCCACGATATCATCAGCAAGTTCTCTGG	
mouse AAT	(824)	ATGGGAAGATGCAGCATCTGGAGCAAACCTCTCAACAAGGAGCTCATCTCTAAGATCCTGTC	
rabbit AAT	(883)	AGGGGAAGCTGCAGCACCTGGAGCAACGCTCAGCAAGGAGCTCATCGGCAAGTTCTCTGG	
rat AAT	(817)	ATGGCAAGATGCAGCATCTGGAGCAAACCTCTCAGCAAGGATCTCATTTCCCGTTCTCTGC	
sheep AAT	(841)	TCGGGAACCTGCAGCACCTGGAGCAACGCTCAACAAGCAACTCTCGGCAAGTTCTCTGG	
Consensus	(901)	ATGGGAAGCTGCAGCATCTGGAGCAAACCTCTCAGCAAGGA CTCATCGCAAGTTCTCTGG	
		961	1020
hamster AAT	(914)	AGGACAGACACACAAGGTTCAGCCAATGTACACTTCCCCAAACTGTCCATCTCTGGAACCT	
human AAT	(913)	AAAAATGAAGACAGAAGGTCTGCCAGCTTACATTTACCCAAACTGTCCATTACTGGAACCT	
mouse AAT	(884)	TAAACAGGGCGAGAAGGTTAGTCCAGATCCATATCCCCAGACTGTCCATCTCTGGAGAAT	
rabbit AAT	(943)	CAAAAAGCAGCTTCAGGTCTGTACGGTCCCGTTTCCCCAAACTCTCCATTTCTGGAACCT	
rat AAT	(877)	TAAACAGGCAACAAGGTTCAGCAATCTGTACTTCCCCAAACTGTCCATCTCTGGAACCT	
sheep AAT	(901)	AAAAAAGATATGCAAGTTCTGCCAATTTACATTTGCCCAAACTGTCCATTTCTGAAACGT	
Consensus	(961)	AAAACAGACACACAAGGTCTGCCAAT TCCATTTCCCCAAACTGTCCATTTCTGGAACCT	
		1021	1080
hamster AAT	(974)	ATAAATTGAAGACAGCCCTGGATGCGCTGGGCATCAGCCAGGTCTTCAGCAATGGGGCTG	
human AAT	(973)	ATGATCTGAAGAGCGTCTCTGGTCAAACTGGGCATCACTAAGGTCTTCAGCAATGGGGCTG	
mouse AAT	(944)	ATAAATTGAAGACACTCATGAGTCCACTGGGCATCAGCCGGATCTTCAACAATGGGGCTG	
rabbit AAT	(1003)	ACGACCTGAAACCCCTCTGGGCAAACTGGGCATCAGCCAGGTCTTCAGGACAAACGGGG	
rat AAT	(937)	ATAAATTGAAGACACTCTCTGAGCTCACTGGGCATCAGCCGGGTCTTCAACAATGATGCTG	
sheep AAT	(961)	ACGATCTGAAAGTGTCTCTGGGTGAAGCTGGGCATCAAGAGGCTCTTCAGCAACGGGGCTG	
Consensus	(1021)	ATGACTTGAAGACAGTCTCTGGTCCACTGGGCATCAGCCGGGTCTTCAGCAATGGGGCTG	
		1081	1140
hamster AAT	(1034)	ACCTTTCTGGGATCAGAGAGGA---TGTTCCCTGAAGCTTGGAAGGCTGTGCATAAGG	
human AAT	(1033)	ACCTCTCCGGGCTCAGAGAGGA---GGCACCCCTGAAGCTCTCCAAGGGCGTGCATAAGG	
mouse AAT	(1004)	ACCTCTCCGGAAATCAGAGAGGAAGTGTCCCTGAAGCTCAGCAAGGCTGTGCATAAGG	
rabbit AAT	(1063)	ACCTCTCCGGGATCAGGAGGA---GGAAGCTCTGAAGGTGTCCAGGGCCTGCACAAGG	
rat AAT	(997)	ATCTCTCTGGAATCAGAGAGGA---TGCCCCCTGAAGCTTAGCCAGGCTGTGCATAAGG	
sheep AAT	(1021)	ACCTCTCAGGGATCAGCGAGGA---ACAGCCTCTGATGCTGTCCAAGGGCTCTCAAGG	
Consensus	(1081)	ACCTCTC GGGATCAGAGAGGA TGC CCCCTGAAGCT TGCAAGGCTGTGCATAAGG	
		1141	1200
hamster AAT	(1091)	CTGTGCTGACCATCGATGAGAGAGGGACGGAAGCTGCAGGGGCCACATTTATGGAATCA	
human AAT	(1090)	CTGTGCTGAGCATCGACGAGAAGGGGACTGAAGCTGCTGGGGCCATGTTTTAGAGGCCA	
mouse AAT	(1064)	CTGTGCTGACCATCGATGAGACAGGAACAGAAGCTGCAGCAGCTACAGTCTTTGAAGCCG	
rabbit AAT	(1120)	TGGTGCTGACCATCGACGAGAGAGGGACGGAAGCTGCCGGGGCCACATTTGTGGAATACG	
rat AAT	(1054)	CTGTGCTGAGCTTAGATGAGAGGGGAACAGAGGCTGCAGGAGGCCACTGTGGTGGAGGCCG	
sheep AAT	(1078)	CTGCCCTGACCATTGATGAGAAAGGGACAGAAGCTCTCTGGGGCCACGTTTCTGGAAGCTA	
Consensus	(1141)	CTGTGCTGACCATCGATGAGAGAGGGACAGAAGCTGCAGGGGCCACATTT TGGAAGCCG	
		1201	1260
hamster AAT	(1151)	TCCCCATGTCTGTGCCCCCTGAGGTGAACCTTAACAGCCCTTTCATTGCCATAATATATG	
human AAT	(1150)	TACCAATGTCTATCCCCCAGAGGCTCAAGTTCAACAACCCCTTCTCTCTTAATGATTC	
mouse AAT	(1124)	TTCTTATGCTATGCCCCCTATCTGCGCTTCGACACCCCTTCTCTTTTATAATATTTC	
rabbit AAT	(1180)	TACTCTATCTATGCCCCAAAGGTCACCTTTGACAGGGCCCTTCTCTTTGTTCATCTACA	
rat AAT	(1114)	TCCCCATGTCTGTGCCCCCTCAAGTGAAGTTGACCAACCCCTTTCATTTTCATGATGTTG	
sheep AAT	(1138)	TCCCCATGTCTCTTCCCCCAGAGCTCGAGTTCAAGAGACCCCTTCTCTTGCATCCCTACG	
Consensus	(1201)	TCCCCATGTCTATGCCCCCTGAGGTGAAGTTTCGACAGCCCTTTCCTTTTCATAATATTTC	

			1261		1320
hamster AAT	(1211)	ATAGACAGACAGCAAAGAGCCCGCTCTTTGTGGGAAAAGTGGTGGATCCCAGACGTTAAT			
human AAT	(1210)	AACAAAATA---CCAAGTCTCCGCTCTTCATGGGAAAAGTGGTGAATCCCACCCAAAAT			
mouse AAT	(1184)	AAGAACACA---CTCAGAGCCGATCTTTGTGGGAAAAGTGGTAGATCCCACACATAAAT			
rabbit AAT	(1240)	GTCATGAGG---TCAAGAGTCCCGCTCTTCGTGGGAAAAGTGGTGGATCCCACCCACACT			
rat AAT	(1174)	AAT--CAGA-AACTCAGAGCCCGCTCTTTGTGGGAAAAGTGAATAGATCCCACACGTTAAT			
sheep AAT	(1198)	ACAGAAACA---CCAAGTCTCCGCTCTTCGTGGGAAAAGTGGTGAATCCCACCCAGCCT			
Consensus	(1261)	AA AACAGA CCAAGAGTCCCGCTCTTTGTGGGAAAAGTGGTGGATCCCACCCAT AAT			

			1321		1380
hamster AAT	(1271)	CACAAT-TCTCAGTC-AGATGTCTATCTTTTCTGATTGGGTCCCGT-----CCCCAGTGA			
human AAT	(1267)	AAGTGCCTCTCGCTCCTCAAGCCCTCCCGCTCCATCCTGGCCCCCT-----CCTGGATGA			
mouse AAT	(1241)	GA-----			
rabbit AAT	(1297)	AAGACCCACCGCAGCACATTAAGGCTCTGAGCTCCCGCTCCAGGGGGCAGCCCCCTC---			
rat AAT	(1231)	CACGTG-CCTCAG---AAGTACATCCCTTTCTGGATCGGGTCCCGT-----TCCTAATAA			
sheep AAT	(1255)	AAGTGCCTCTCGGGGTTCAAGTTTCCCGTCCAGGCCAGGTCCCGTCTTCTCCTCATGG			
Consensus	(1321)	AAGTGCCTCTCGG ACATC CATCCCTTC G CC GGTCCCCT CCCC ATGA			

			1381		1435
hamster AAT	(1324)	CATTAAACACAGGCTGTCTCTGGCCACCCATGCCTGAGTGCTTCTGCAATGCTC			
human AAT	(1323)	CATTAAAGAAGGGTTGAGCTGGA-----			
mouse AAT	(1243)	-----			
rabbit AAT	(1354)	-----			
rat AAT	(1282)	TATTAAACTCAGGCTGGCGCTGCCT-----			
sheep AAT	(1315)	CATTAAAGGATAACTGACCT-----			
Consensus	(1381)	CATTAA GGCTG CCTGG			

mouse alpha1-antitrypsin polypeptide sequence

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1  MTPSISWGLL LLAGLCCLVP SFLAEDVQET DTSQKDQSPA SHEIATNLGD FAISLYRELV
61  HQSNTSNIFF SPVSIATAFA MSLGSKGDT HTQILEGLQF NLTQTSEADI HKSFOHLLQT
121 LNRPDSELQL STGNGLFVN DLKLVEKFL EAKNHYQAEV FSVNFAESEE AKKVINDFVE
181 KGTQGIKVEA VKELDQDTVF ALGNYILFKG KWKKPFDPEN TEEAEFHVDK STTVKVPMMT
241 LSGMLDVHHC STLSSWVLLM DYAGNASAVF LLPEDGKMQH LEQTLNKELI SKILLNRRRR
301 LVQIHIPRLS ISGEYNLKT MSPLGITRIF NNGADLSGIT EENAPLKLK AVHKAVLTID
361 ETGTEAAAAT VFEAVPMSMP PILRFDHPFL FIIFEEHTQS PIFVGKVVDP THK*

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Alignment of homologous protein sequences from other species

		1		60
mouse AAT	(1)	MTPSISWGLLLLAGLCCLVPSPFLAEDVQ-----ETDTSQKDQS-PASHEIATNLGDFAFS		
rat AAT	(1)	-APSHGGSCFWQPCVAVPPASWIRMPKRP-IPPSRTRVQPTVRFLQTWQTLPSAYTGSWS		
human AAT	(1)	-MPSVSWGILLAGLCCLVPVSTAEDPQGDAAQKTDTSHHQDHPHTFNKITPNLAEFAFS		
sheep AAT	(1)	MALSIIRGLLLAALLCCLAPSTIAGVLQGHAVQETDDTAHQEAA--CHKIAPNLANFAFS		
hamster AAT	(1)	MKPSISWGLLLLAGLCCLVPSPFLAEDAQ-----ETDASKODQEHQACCKIAPNLADFSTFN		
rabbit AAT	(1)	MPPSVSRALLLLLAGLGCLTPGFLAEDAQ-----ETAVSSHEQDRPACHRIAPSLVEFALS		
Consensus	(1)	M PSIS GLLLLLAGLCCLVPSPFLAED Q ETD S HDQD PACHKIAPNLADFAFS		

		61		120
mouse AAT	(55)	LYRELVHQSNSTNIFFSPVSIATAFAMLSLGSKGDTHTQILEGLQFNLNLTQTSEADIHKSF		
rat AAT	(59)	INPIHPTSSSPL-ASPOQSPCSPWGARTLANRF-RAWSSTSHRYLRITSTRPSITSSKL		
human AAT	(60)	LYROLAQHNSSTNIFFSPVSIATAFAMLSLGKADTHDEILEGLNFNLTEIPEAQIHEGF		
sheep AAT	(59)	TYHKLHQSNSTNIFFSPVSIATAFAMLSLGAKGNTHTEILEGLGFNLTEIAEAETIHKGF		
hamster AAT	(56)	LYRELVHQSNNTNIFFSPVSIATAFAMLSLGKGVTHHTQILEGLGFNLTEIAEAETVHKGF		
rabbit AAT	(56)	LYRELVARESNNTNIFFSPVSIATAFAMLSLGAKGDTHTQVLEGLKFNLTEIAEAQIHGDF		
Consensus	(61)	LYRELAHQSNNTNIFFSPVSIATAFAMLSLGTKGDTHTQILEGL FNLTEIAEAETIHKGF		

		121		180
mouse AAT	(115)	QHLLQTLNRPDSELQLSTGNGLFVNNDLKLVEKFL EAKNHYQAEVFSVNFAESEEAKKV		
rat AAT	(117)	STGQTVSCS-----TQAMASLSTRI-SWWSFHWKRSRTTTTQKPSLSTLPTQKRLRK-		
human AAT	(120)	QELLRTLNPQDSQLQLTTGNGLFI SEGLKLVDFLEDVKKLYHSEAFIVNFGDHEEAKKQ		
sheep AAT	(119)	QHLLHTLNQPNHQLQLTTGNGLFINESAKLVDTELEDVKNLHHSKAFSINFRDAEEAKKK		
hamster AAT	(116)	HNLLQTFNRPDSELQLTTGNGLFIHNHNLKLVDFLEEVKNLYHSEAFSVNFTDSEAKKV		
rabbit AAT	(116)	RHLLHTVNRPDSELQLAAGNALVSENKLVDFLEDAKNLYQSEAFVDFRDPEQAKTK		
Consensus	(121)	QHLL TLNRPDSELQLTTGNGLFI SE LKLVDFLEDVKNLYHSEAFSVNF DSEAKK		

181 240
 mouse AAT (175) INDEVEKGTQGI~~V~~EAVKELDQDTVFALGNYILF~~K~~GKWK~~K~~PF~~D~~PENTEEAE~~F~~HVDK~~S~~TTV
 rat AAT (168) ~~U~~MIM-~~R~~REPKE~~R~~-~~I~~I--NSW~~T~~KTRF~~T~~IPW-ITFSL~~K~~ASGRGHS~~I~~LSTLGM~~L~~TET-TSP~~P~~Q-
 human AAT (180) INDEVEKGTQGI~~V~~DLVKEL~~D~~QDTVFALVNI~~F~~FKGWE~~R~~PF~~E~~VK~~D~~TE~~D~~ED~~F~~HVDQ~~V~~TTV
 sheep AAT (179) INDEVEKGS~~H~~GKI~~V~~DLVK~~D~~LDQDTVFALVNI~~S~~FKGWE~~K~~PF~~E~~VEHTTER~~D~~E~~F~~HVNEQ~~T~~TV
 hamster AAT (176) INDEVEKGTQGI~~V~~DLVK~~D~~LDQDTVFALVNI~~F~~FKGWK~~K~~PF~~D~~ADNTEEAD~~F~~HVDK~~T~~TTV
 rabbit AAT (176) INSHVEKGT~~R~~GKI~~V~~DLVQEL~~D~~ART~~L~~LALVNI~~V~~FF~~K~~GKWE~~K~~PF~~E~~PENTKEED~~F~~HVDAT~~T~~TV
 Consensus (181) INDFVEKGTQGI~~V~~DLVKEL~~D~~KDTVLALVNI~~F~~FKGWE~~K~~PF~~E~~VENTEE DFHVD TTTV

241 300
 mouse AAT (235) KVE~~F~~---MM~~T~~LSGMLD~~V~~HH~~C~~STLSSWVLLMDYAGNASAV~~F~~FLP~~E~~DGK~~M~~OH~~L~~E~~Q~~TLNKELI
 rat AAT (221) ~~R~~CP~~F~~---TAWACLTCTIAAHCP~~A~~GC--W~~T~~WTWATPLP-~~S~~SSCP~~M~~MARCSIWSK~~I~~SPR~~T~~SFP~~G~~S
 human AAT (240) KVE~~F~~---MMKRLGMFN~~I~~QHCKKLSSWVLLMKYLG~~N~~ATA~~I~~FF~~L~~PD~~E~~GK~~L~~QH~~L~~E~~Q~~TLN~~K~~ELI
 sheep AAT (239) KVE~~F~~---MMNRLGMFD~~L~~HY~~C~~DKL~~A~~SWVLL~~D~~Y~~V~~GNVTAC~~F~~FLPD~~L~~GK~~L~~Q~~L~~Q~~L~~EDK~~L~~NNELI
 hamster AAT (236) KVE~~F~~---MMSRLGMFD~~V~~HY~~V~~STLSSWVLLMDYLG~~N~~ATA~~I~~FF~~L~~PD~~E~~GK~~M~~OH~~L~~E~~Q~~TLNKELI
 rabbit AAT (236) KVE~~F~~---MMSRLGM~~V~~VMFHCSTL~~A~~STV~~L~~MDYKGNATA~~I~~FF~~L~~PD~~E~~GK~~L~~QH~~L~~E~~Q~~TLN~~T~~ELI
 Consensus (241) KVP MMSRLGMFDVHH~~C~~STLSSWVLLMDYLG~~N~~ATA~~I~~FILPDDGK~~L~~QH~~L~~E~~Q~~TLN ELI

301 360
 mouse AAT (291) SKILLN~~R~~RRRLVQ~~L~~HT~~P~~RLSISGEYNLKT~~L~~MSPL~~G~~ITR~~I~~FNNGADLSGITEENAPL~~K~~LSK
 rat AAT (276) C-TGK~~Q~~GQPFST~~S~~PNCP~~S~~TEPIT-RHS-AHWAS~~P~~CSST~~M~~MLIS~~L~~ESQ~~R~~MPP-----SLA~~R~~
 human AAT (296) TKFLE~~N~~EDRRSAS~~L~~HL~~P~~KLSI~~G~~TYDLK~~S~~VLGQ~~L~~GIT~~K~~VFSNGADLSG~~V~~TEE-APL~~K~~LSK
 sheep AAT (295) AKFLE~~K~~KYASSAN~~L~~HL~~P~~KLSI~~S~~ETYDLKT~~V~~LGEL~~G~~INRVFSNGADLSGITEE-QPLM~~V~~SK
 hamster AAT (292) GKFLK~~D~~RHTRSAN~~V~~H~~P~~KLSISGTYNLKTALDPL~~G~~ITQVFSNGADLSGITE~~D~~-VPLKLGK
 rabbit AAT (292) AKFLAKSSFRSV~~T~~V~~R~~FPKLSISGTYDLK~~P~~LGL~~G~~ITQVFSNADLSGITEQ-EALK~~V~~SQ
 Consensus (301) AKFL NR RSASLHLPKLSISGTYDLKTLLG LGITRVFSNGADLSGITEE PLKLSK

361 420
 mouse AAT (351) AVHKAVLTIDE~~T~~GTEAA~~A~~ATVFEAV~~P~~MSM~~P~~PI~~L~~RFDHPFLFI~~I~~EEHTQS-PLFV~~G~~KVVD
 rat AAT (328) LCIR~~L~~C-P-MRGEQRLQEPL~~W~~WRPSPCLC~~P~~LK-SST~~T~~LSFS--LNQKL~~R~~APSLWEK--~~I~~P
 human AAT (355) AVHKAVLTIDE~~K~~GTEAAGAM~~F~~EAIPMS~~T~~PEVKFN~~K~~PF~~V~~FL~~M~~IE~~Q~~NTKS-PLF~~V~~GKVVN
 sheep AAT (354) A~~L~~HKAALTIDE~~K~~GTEAAGAT~~F~~EAIPMS~~L~~PP~~D~~VEFN~~R~~PFLC~~I~~YDR~~N~~TKS-PLFV~~G~~KVVN
 hamster AAT (351) AVHKAVLTIDE~~R~~GTEAAGAT~~F~~MEI~~I~~PMS~~V~~PEVNFNSP~~F~~AI~~I~~YDR~~O~~TAKSP~~L~~FV~~G~~KVVD
 rabbit AAT (351) A~~L~~HKVVL~~T~~IDE~~R~~GTEAAGAT~~F~~VEY~~V~~LYSM~~P~~Q~~R~~VTFDR~~P~~FLF~~V~~IYSHEVKS-PLFV~~G~~KVVD
 Consensus (361) AVHKAVLTIDE~~K~~GTEAAGAT~~F~~EAIPMSMPPEV FNRPF~~L~~FIIYD NTKS PLFV~~G~~KVVD

421
 mouse AAT (410) PTHK-
 rat AAT (381) HV---
 human AAT (414) PTQK-
 sheep AAT (413) PTQA-
 hamster AAT (411) PTR--
 rabbit AAT (410) PTQH-
 Consensus (421) PTQ

Fig 3D

Alignment of homologous EMAP mRNA and protein sequences from other species

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1
rabbit EMAP (1) -----TTCGGCGTGTTCAG
dog EMAP (1) -----GCACGAGGTCTCTGATTGCTGTTTCCAG
human EMAP (1) -----ATGTTGACCGAGCTGGAGAAAGCCTTGAACCTATCATCGACGCTACCCAC
rat EMAP (1) -----ATGGCAAGTGAAGTGGAGAGGCCCTTGAGCAACGTCATTGAAGTCTACCCAC
pig EMAP (1) ATGGCAAAAAGACCCACAGAGACTGAGCGTTGCATGAACTCTCTGATTGCTATTTTCCAA
mouse EMAP (1) -----ATGCCTACAGAGACTGAGAGATGCATGAGTCCCTGATTGCTGTTTCCAA
Consensus (1) ATG C AC GAG GAGA GCATGAA TCTCTGATTGCTGTTTCCAA

61
rabbit EMAP (16) AAGTACGCTGGAAAGGATGGGCACAGCGTCACCCCTCTGCAAGACCGAGTTCCTGTCTCTT
dog EMAP (30) AAGTTTGCTGGAAAGGAGGGTAAACAAGTGCACACTCTCCAAGACAGAGTTCCTAGCCTTC
human EMAP (52) AAGTACTCCCTGATAAAGGGGAATTTCCATGCCGCTACAGGGATGACCTGAAGAATTG
rat EMAP (52) AATTTATCTGGTATAAAGGGGAATCACCATGCCCTCTACAGGGATGACTTCAGGAAATG
pig EMAP (61) AAGCATGCTGGAAAGGACGGTAACAACACGAAATCTCCAAGACCGAGTTCCTAATTTTC
mouse EMAP (52) AAGTACAGCGGGAAGGATGGAACAACACTCAACTCTCCAAACTGAATTCCTTTCTTC
Consensus (61) AAGTATGCTGGAAAGGA GGAACAAC TACCCTCTCCAAGACTGAGTTCCTGACCTTC

121
rabbit EMAP (76) ATGAACACAGAGCTGGCTGCCTTCACAAAGAACCAGAAAGGACCCCGGCGTCTTCAGCCGC
dog EMAP (90) ATGAATACAGAACTGGCTGCCTTCACAAAGAACCAGAAAGGACCCGCTGCTCTGACCCGC
human EMAP (112) CTAGAGACCGAG-----TGCTCTCAGT-ATATCAGGAAA-AA-----GGTGGC-AGACGTC
rat EMAP (112) GTCACACTAGTAG-----TGGCTCAGT-TTGTGCAGAAAT-AA-----AAATAG-CGAAAGC
pig EMAP (121) ATGAATACAGAGCTGGCTGCCTTCACACAGAACCCAGAAAGACCCGCTGCTCTTCAGCCGC
mouse EMAP (112) ATGAACACAGAGCTGGCTGCCTTCACAAAGAACCAGAAAGGATCCTGGTGTCTTCAGCCGC
Consensus (121) ATGAATACAGAGCTGGCTGCCTTCACAAAGAACCAGAAAGACCCGCTGCTCTTCAGCCGC

181
rabbit EMAP (136) ATGATGAAGAAATTGGACCTCAACAGTGCAGG-GCAGCTGGATTTCACAA-----
dog EMAP (150) ATGATGAAGAAACTGGACCTCAACTCTGATGG-GCAGCTGGATTTCACAAAGATTTCCTTA
human EMAP (160) TGGTTCAAAGAGTTGGATATCAACACTGATGGTGCAGTTA-ACITCCAGGAGTTCCTCAT
rat EMAP (160) TTGTTCAAAGAAATTGGACCTCAATAGTGACAACGCCAATTA-ACITCGAAGAGTTCCTTGC
pig EMAP (181) ATGATGAAGAAATTGGACCTCGACTCTGATGG-GCAGCTAGATTTCGAAGAATTTCCTTA
mouse EMAP (172) ATGATGAAGAACTGGACCTCAACTGTGACGG-GCAGCTAGATTTCGAAGAGTTTCCTCA
Consensus (181) ATGATGAAGAAATTGGACCTCAACTGTGATGG GCAGCTAGATTTCGAAGAGTTTCCTTA

241
rabbit EMAP (184) -----
dog EMAP (209) TCTTATTGGTGGGATGGCCATAGCTTGCCATGACTCCTTTTCAAGGTCTCCGCATTTCG
human EMAP (219) TCTGGTGATAAAGATGGGGTGGCAGCCACAAAAAAGCCATGAAGAAAGCCACAA
rat EMAP (219) GTTGGTGATAAGGGTGGGCTGGCAGCTCATAAA-----GACAGCCACAA
pig EMAP (240) TCTTATTGGCGGCTGGCCATAGCTTGCCATGACTCCTTTATTAAAGTCTACCCA
mouse EMAP (231) CCTCATTTGGTGGCTTAGCTATAGCTGGCCATGATCTTTTCATCCAAACTTCCAGAGGCG
Consensus (241) TCT ATTGG GGC TGGCCATAGC TGCCATGA TC TT A A CTACCCA AA

301
rabbit EMAP (184) -----
dog EMAP (269) GAAGTAAATCGGAGGGGTTCCTGGGCCTGGCCTCCAGACCACCTCTTTCCTTCAAAACAG
human EMAP (276) AGAGTAG
rat EMAP (264) GGAGTAA
pig EMAP (294) GAAGTAA
mouse EMAP (291) AATCTAA
Consensus (301) GAAGTAA

361
rabbit EMAP (184) -----
dog EMAP (329) CTTCCCAATCATCACATCCTTCTCACATCCTACACAGACCTGAGCCACAGTGTCACCA
human EMAP (283) -----
rat EMAP (271) -----
pig EMAP (301) -----
mouse EMAP (298) -----
Consensus (361) -----

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                                421                                460
rabbit EMAP (184) -----
dog EMAP (389) CCCTGTGCAGGCCAGTCCTGCTGGTAGTGAATAAAGCAAT
human EMAP (283) -----
rat EMAP (271) -----
pig EMAP (301) -----
mouse EMAP (298) -----
Consensus (421) -----

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Mouse EMAP protein sequence

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1 MPTETERCIE SLIAVFQKYS GKDGNNQLS KTEFLSFMNT ELAAFTKNQK DPGVLDMMK
61 KLDLNC DGQL DFQEFLNLIG GLAIACHDSF IQTSQKRI*

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Alignment of homologous protein sequences from other species

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                                1                                60
dog EMAP (1) -----TRSLIAVFQKFAKEGNNCTLSKTEFLTFMNT ELAAFTKNQKDPGVLD
mouse EMAP (1) ---MPTETERCIESLIAVFQKYS GKDGNNQLSKTEFLSFMNT ELAAFTKNQKDPGVLD
rabbit EMAP (1) -----FAVFQKYAGKDGH SVTL SKTEFLSFMNT ELAAFTKNQKDPGVLD
human EMAP (1) ---MLTELEKALNSITIDVYHKYSLIKGNFHAVYRDD LKKLETECPQYIRKK----GADV
rat EMAP (1) ---MATELEKALSNVIEVYHNYSGIKGNHHALYRDDFRKMVTECPQFVONK----NTES
pig EMAP (1) MAKRPETERCIESLIAVFQKHAGRDGNNTKLSKTEFLIFMNT ELAAFTQNKDPGVLD
Consensus (1) M TE EK I SLIAVFQKYAGKDGN LSKTEFLSFMNT ELAAFTKNQKDPGVLD

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                                61                                102
dog EMAP (50) MMKKL DLNS DGQLDFQEFLNLIGGLAIACHDSFTRSPHFRK-
mouse EMAP (58) MMKKL DLNCDGQLDFQEFLNLIGGLAIACHDSFIQTSQKRI-
rabbit EMAP (46) MMKKL DLNS DGQLDFQ-----
human EMAP (54) WFKELDINTDGAVNFEFLILVIKMGVA AHKKSHEESHKE--
rat EMAP (54) LFKELDVNSDNATNEEFLALVIRMGVA AHKDSHKE-----
pig EMAP (61) MMKKL DLSDGQLDFQEFLNLIGGLAIACHDSFIKSTQK---
Consensus (61) MMKKL DLNSDGQLDFQEFLNLIGGLAIACHDSF KSS K

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Fig. 4

